I. Background

A. Regional Setting

The proposed Tinicum-Fort Mifflin Trail corridor is located in the highly urbanized setting of southwest Philadelphia and Tinicum Township, Pennsylvania. It passes through two counties, Philadelphia and Delaware, and through several municipalities in Delaware County, including Tinicum Township (Lester and Essington), Prospect Park Borough, and the Borough of Norwood.

The trail is proposed to intersect with the Botanic Trail in upper southwest Philadelphia, currently in the design stage, and the Cobbs Creek Bikeway in West Philadelphia, currently in the construction stage. At least a portion of the Tinicum-Fort Mifflin Trail would be incorporated into the East Coast Greenway, a multi-use trail connecting cities from Maine to Florida. In addition, the proposed Tinicum-Fort Mifflin Trail segment from Bartram's Garden to Fort Mifflin would become part of the five-county Schuylkill River Trail system, many segments of which are complete. The Schuylkill River Development Corporation is promoting the development of the tidal portion of the Schuylkill River Trail through the Tidal Schuylkill River Master Plan process. The main "stem" of the entire trail system follows the Schuylkill River some 110 miles south from mountainous Schuylkill County, through the agricultural county of Berks (including Reading), the suburban and rural Montgomery and Chester counties, and finally to the City of Philadelphia.

B. Brief History of the Lower Schuylkill River Valley

After colonization by William Penn during the 17th century, immigrants from Europe poured into the new colony in Pennsylvania. They were attracted by Penn's principles of intellectual and religious tolerance and freedom, as well as scientific exploration and technical innovations. The land along the Schuylkill River proved particularly fertile, and Pennsylvania soon became famous as the "best poor man's country." The colony quickly grew in size during the 18th century as immigrants attracted by agricultural opportunities arrived in Philadelphia and moved up the Schuylkill into the interior. Pennsylvania achieved prominence as the "breadbasket of the Mid-Atlantic," with Philadelphia as a major export for wheat and flour, receiving products transported down the Schuylkill River and its canal system. The Schuylkill valley's impressive output of grains and livestock, orchard and garden produce, flax and hemp made it the most productive farming region in America.

The Schuylkill Valley concurrently developed as one of the most important industrial regions in the British colonies. The earliest paper mill in British North America was established along a tributary of the Schuylkill River in Philadelphia during the 17th century. The charcoal fueled iron industry developed in the 18th century along tributaries of the Schuylkill River in Berks and Chester counties. By the 1770s, Pennsylvania had emerged as the center of the iron industry within the North American colonies, and later still, this center shifted to large steel and iron manufacturers in towns further downriver—Phoenixville, Conshohocken, and Norristown. Philadelphia became a major manufacturing center during the mid-19th century. It was transformed from a seaport to an industrial mill city because of the availability of anthracite coal transported from Schuylkill County downriver using the Schuylkill Navigation canal. The historical and strategic military importance of the Mud Island-League Island area is also commemorated by Fort Mifflin. Philadelphia did not escape the ravages of the Revolutionary

War, and Fort Mifflin still stands at the confluence of the Schuylkill and Delaware rivers as mute testimony to this dangerous time. Bombarded mercilessly by the British during November of 1777, it was eventually captured after many American Revolutionary soldiers were killed. The fort housed prisoners during the Civil War and was in use for storage up through the Korean War. This event closed out the military history of the old fort, although the U.S. Army Corps of Engineers and the Pennsylvania National Guard still operate a military reservation north of the original site.

Southwest Philadelphia and the Tinicum Marsh area were slowly transformed from farming communities into urban industrial areas. Early Swedish communities of the 17th and early 18th centuries, with their hastily constructed log cabins, disappeared, although some of these early structures—Morton Homestead in Prospect Park Borough and Morton Morton House in Norwood Borough—survive as isolated historic sites. The American Swedish Historical Museum in FDR Park (South Philadelphia) also commemorates Philadelphia's first permanent settlers. As the frontier moved inward from the coast, the developing City of Philadelphia acquired a patina of British ways, aided by the early political dominance and commercial ties to Great Britain. Throughout the 18th century, men of political prominence established "country estates" along the tidal Schuylkill River as a refuge from the bustle of the city and, they thought, from disease. The Woodlands, once home to noted lawyer Andrew Hamilton, and Bartram's Garden, former home of the botanist John Bartram, are two rare sites that survive from this period.

This pastoral landscape changed dramatically during the 19th century. The Schuylkill became polluted with industrial wastes from various factories and mills adjacent to the river, which were sited there because of the proximity to river transport. In addition, the lower Schuylkill was the center of early oil processing efforts during the 1860s. By the 1880s, long-distance pipelines linked the Appalachian oil fields with Philadelphia and other major cities. The vast refineries seen today on the east and west banks of the lower Schuylkill became a fixture of the industrial landscape during this period. Also during this time, the League Island Navy Yard supplanted the older Navy Yard at Federal Street, continuing the city's illustrious shipbuilding tradition. Anchoring the junction of the Schuylkill and Delaware rivers, the current Philadelphia Naval Base is a reminder of the prominent role of the U.S. Navy in World War II, with its deactivated fleet of historic battleships visible on the Schuylkill's east bank.

Meanwhile, further west in Tinicum, marshlands were filled in first to create the largest shipyard in the world during the World War I era, and then during the 1930s to develop Philadelphia's municipal airport, now known as Philadelphia International Airport. The airport evolved from a one-terminal building in 1940 to the five-terminal giant it is today, while the once vast freshwater marshlands were reduced to some 1,200 acres that became the nucleus for John Heinz National Wildlife Refuge at Tinicum. The concentration of a variety of industries and factories in this area attracted workers, who needed homes close to their source of employment. Several communities grew up around local mills such as the Passmore Mill and the Fels Company around 71st Street and Paschall Avenue in southwest Philadelphia. The Hog Island Shipyard required the building of some 1,500 homes around 65th Street and Buist Avenue to house shipyard workers. New transportation options were also developed to serve the industries and workers of southwest Philadelphia and Tinicum, including trolleys and freight rail lines.

Today the Schuylkill and Delaware rivers have come back from the pollution of previous decades, thanks to more stringent environmental regulations and the construction of major sewage treatment facilities in the Philadelphia and Camden area. Communities are once again turning their attention to the riverfront and its potential redevelopment, including for recreational

use. The blend of residential areas, commerce and industry, and related transportation networks present today has meant that little open space was planned for or remains within or near the communities of southwest Philadelphia and Tinicum. On the other hand, islands of parkland and open space exist—for example, Bartram's Garden and Governor Printz Park—which could be connected to restore a ribbon of green to the tidal Schuylkill and lower Delaware River. The previous and current planning efforts described in the next two sections address the need for interconnected and expanded open space and recreational facilities in this area, and the need for alternative transportation options to access jobs, shopping, historic sites, and other community resources.

C. The Schuylkill River Valley National Heritage Area

Landscapes and their natural and cultural resources, as well as folklife activities, are the basic elements from which a heritage corridor draws its vitality. A heritage corridor or park is an area so designated by the Commonwealth of Pennsylvania because it played an important role in the development of the state. Federal designation as a national heritage corridor relates to the area's prominent role in contributing to the nation's development.

The Schuylkill River Heritage Corridor was designated a state heritage park in 1995 and subsequently, in October of 2000, designated a national heritage area officially named the Schuylkill River Valley National Heritage Area. The Heritage Area is managed by the Schuylkill River Greenway Association, which administers the state heritage park grants that funded the Tinicum-Fort Mifflin Trail Development Study. It is not a park in the conventional sense of a publicly owned recreational facility with a clear boundary. Rather, it is recognized for the rich inheritance its enterprising people passed on to future generations in the course of 300 years of Pennsylvania history. The proposed Tinicum-Fort Mifflin Trail falls within the Schuylkill River Valley National Heritage Area. The corridor contains resources that tell the story of the historic industries that made Pennsylvania prosper and helped build the nation: agriculture, transportation, coal, steel, textiles, and machinery. Corridor resources also communicate our nation's dedication to religious freedom, political independence, and the rule of law. The Schuylkill River, Pennsylvania's first scenic river is central to the story of the colonization and industrialization of America.

The Schuylkill Navigation System creates the spine of the Schuylkill Heritage Area. It is the canal waterway that first linked the region into a working system, built and operated in 23 segments called "reaches," including the southernmost reach starting at the Fairmount Dam in Philadelphia. Each of these reaches had its own special character and distinctive features, and are today used interpretively to help clarify the overall story of the corridor. These reaches are, from north to south, Anthracite, Agricultural, Industrial, and Urban Gateway. The theme of transportation links them together into a coherent system. The proposed Tinicum-Fort Mifflin Trail falls within the Urban Gateway Reach. The Urban Gateway stretches south from Manayunk near the border with Montgomery County to the confluence of the Schuylkill and Delaware rivers, including such important historic and cultural sites as the Fairmount Water Works, Philadelphia Art Museum, 30th Street Station, the Woodlands, Bartram's Garden and Fort Mifflin. Relevant stories pertaining to this reach are suggested by the Schuylkill River Heritage Corridor Management Action Plan, developed by the Schuylkill River Greenway Association as a requirement for state heritage park designation. The Management Action Plan proposes telling these stories by means of interpretive sites at appropriate locations along the Botanic Trail and proposed Tinicum-Fort Mifflin Trail, both part of the Schuylkill River Trail system.

The highest priority identified in the *Schuylkill River Heritage Corridor Management Action Plan* is the completion of the Schuylkill River Trail along the entire length of the Schuylkill River. The proposed Tinicum-Fort Mifflin Trail would become the southernmost portion of the Schuylkill River Trail.

Additionally, the Management Action Plan notes four visitor reception points along the lower Schuylkill. The Tinicum-Fort Mifflin Trail would connect to two of these via the Botanic Trail and Schuylkill River Park—30th Street Station and Fairmount Water Works. Fairmount Water Works, on the east bank of the Schuylkill, is accessible to Center City and an important location along the Schuylkill River Trail. The interpretive center at the Water Works will tell much of the Urban Gateway story in its programs, and the historic site itself relates to industrial and conservation aspects of Schuylkill themes. In addition, restoration of the site is nearly complete, including an outdoor pavilion and restaurant, refurbished museum/ interpretive center, and a planned dock for river access to the site.

30th Street Station is the restored, former grand station of one of the corridor's major railroads, the Pennsylvania Railroad, and overlooks the west bank of the Schuylkill opposite the planned extension of Schuylkill River Trail to Schuylkill River Park. The station is the northern terminus of the Botanic Trail, part of the larger Schuylkill River Trail system, and the regional hub of the AMTRAK Northeast Corridor rail lines and the suburban commuter rail lines. An average of over 23,000 AMTRAK and SEPTA customers utilize the station every day, making it second only to New York's Pennsylvania Station in the number of inter-city passengers who get on and off AMTRAK trains. The 58-year old station was recently renovated at a cost of \$80 million, and is the city's most attractive gateway. A visitor center or kiosk at 30th Street Station could reach millions of incoming travelers each year, including commuters, and visitors shopping at the station. At both visitor reception sites, there is the opportunity to highlight the Botanic and Tinicum-Fort Mifflin trails and related attractions.

In addition, tourism in the Schuylkill River Heritage Corridor is predicted to play a key role in regional economic gains. According to the Management Action Plan, by 2005 all reaches, including the Urban Gateway, will benefit from significant annual expenditures by visitors and from proposed development and tourism related operations. Sales tax revenues and new jobs will likely be generated. Provided that marketing needs are addressed for heritage corridor resources in the lower Schuylkill, the Tinicum-Fort Mifflin Trail could contribute to these economic impacts, and communities and businesses adjacent to the trail could benefit economically from increased visitation.

D. Genesis of the Tinicum-Fort Mifflin Trail Project

Relationship to Existing and Future Plans

Studies during the past three decades concerning the recreational value of the Schuylkill and Delaware rivers have mainly focused on segments of these river corridors north of Philadelphia. More recently, recreational studies have been conducted on both river corridors that include their Philadelphia segments. Current planning efforts focus on the revitalization of the lower Schuylkill beyond recreational uses, including the three-year Tidal Schuylkill Master Plan process undertaken by Schuylkill River Development Corporation in partnership with federal, state and city agencies, non-profit recreational and conservation organizations, and communities in Center City, South and Southwest Philadelphia.

In addition, regional planning policies have focused increasingly on "smart growth," including comprehensive transportation policies that foster bicycle and pedestrian utilitarian trips, economic redevelopment policies which promote a return to living and working in cities, and containment of suburban sprawl, policies which support the development of a regional trails network. It must be noted, however, that while city agencies are generally supportive of trail planning within the Schuylkill corridor, there are conflicting land use policies which must be resolved. Planning for the Tinicum-Fort Mifflin Trail has considered existing city and regional policies and the recommendations of previous and current plans, which are described below.

• <u>Management Action Plan: The Schuylkill Heritage Corridor</u>, Schuylkill River Greenway Association, 1995

The Schuylkill River Greenway Association, in partnership with the five counties included in the Schuylkill River Heritage Corridor, completed this study as a requirement for state heritage park designation. The *Management Action Plan* includes a comprehensive assessment of the Schuylkill River corridor's natural, cultural and recreational attractions in the counties of Schuylkill, Berks, Chester, Montgomery, and Philadelphia.

The Management Action Plan makes several references to the lower Schuylkill River in Philadelphia, referred to as the "Urban Gateway" in the plan, and recognizes the importance of Philadelphia in helping to tell the entire story of the Schuylkill as a linked system. The plan recognizes the importance of the southernmost end of the river corridor and Fort Mifflin as an "anchor" at the confluence of the Delaware and Schuylkill rivers. This fort was the scene of the heaviest artillery bombardment of the Revolutionary War and is noted as the main attraction along the lower Schuylkill River. The riverbank north of Ft. Mifflin is noted as an industrial landscape.

As the northernmost anchor within the tidal Schuylkill, Bartram's Garden includes the home and adjacent estate of John Bartram, America's first horticulturist. This early 18th century home and 44-acre estate contrasts with the industrial buildings and refineries that surround it. The plan recognizes the importance of linking Fort Mifflin and Bartram's Garden as two historically significant attractions of the lower Schuylkill River, and also recognizes the challenges because of the perception that these sites are relatively inaccessible.

Although several suggested tours—"The Botanical Ribbon," "River Roads and Rambles, " and "The Revolutionary River"—include one or the other site, a possible link between the two sites was referenced in a suggested "Roam the River" boat tour. The boat tour was originally developed and presented in 1994 as a special event by the Foundation for Architecture and the Schuylkill River Development Corporation. This approach would feature access to spectacular views of the old Philadelphia Navy Yard, Kvaerner Shipbuilding facilities, Girard Point, Sun Company and Exxon refineries as well as Fort Mifflin and Bartram's Garden. The tour would emphasize two complementary themes: the Schuylkill River as the highway to the hinterlands that made possible the vital relationship between the city and its countryside as far north as the coal fields in Schuylkill County; and the city as the culmination of the rich river system, resulting in the oil tanks, coal ports, and industry still visible in the Urban Gateway. Boat landings were proposed at Fort Mifflin, Bartram's Garden, Schuylkill River Park, and the Fairmount Water Works. A link between the sites over land is inferred in the Management Action Plan, but no route is described.

Many site descriptions in the plan relate to the Schuylkill river corridor's industrial past, and also feature current, co-existing recreational opportunities. The plan's upriver "Industrial Reach" stories include the founding and development of Phoenixville, Valley Forge, Hopewell Furnace National Historical Site, Pottstown, Pottsgrove Manor, Norristown, and Manayunk. Riverside recreational opportunities—fishing, boating, bicycling, hiking and jogging--occur in and around active and inactive industrial sites all along the river. In addition, native vegetation and wildlife have made a comeback at these industrial sites and have enhanced the recreational value of the Schuylkill River.

• Botanic Trail Development Study, Campbell Thomas and Company, 1999

The Botanic Trail, currently in the design phase, is a 2.5-mile greenway that was originally planned for the lower Schuylkill's west bank from 30th Street Station to Historic Bartram's Garden. The Botanic Trail proposes using 51st Street and Botanic Avenue to access Historic Bartram's Garden, and will form the northern link with the Tinicum-Fort Mifflin Trail. The Botanic Trail provides a link with the east bank of the Schuylkill, including Schuylkill River Park and Center City residents, via the Walnut Street Bridge and Grays Ferry Avenue Bridge. The Botanic Trail is envisioned to offer bike and walking trails along public rights-of-way, connecting the University City area with Bartram's Garden, thus realizing Frederick Law Olmsted's 1898 plan to link this historic garden landscape with the Penn campus.

This study describes the potential trail alignments and access points, including Bartram's Garden, and the feasibility of implementing the alignments. The study provides an understanding of the physical obstacles and opportunities for recreation that lie within the lower Schuylkill River corridor. The description of land issues, marketing needs, potential rights-of-way easements/acquisitions, safety concerns, and alternatives for maintenance and management provided the basic blueprint for implementation of the trail.

The initial river oriented alignment proposed in the study was later shifted further west into University City to accommodate the changing political environment, better serve the mobility needs of West Philadelphia, and address safety issues. The Philadelphia City Planning Commission has identified the west bank of the tidal Schuylkill as zoned for heavy industry into the foreseeable future, and recommended that neither the Botanic Trail nor the proposed Tinicum-Fort Mifflin Trail be sited in this area due to safety and liability issues.

Trail alignments have been identified, and the project has been promoted to the general public through trail walks and publicity, generating support among many institutions and agencies. Phase Two, funded by a grant from the William Penn Foundation, involved meeting with property owners along the proposed trail to obtain letters of intent for easement or sale of right-of-way, developing design and construction cost estimates, and applying for federal TEA-21 and other grants to help finance the project and seek maintenance commitments for the trail. The design phase of the project will be conducted as part of the PA DCNR's watershed planning grant to the Schuylkill River Development Corporation.

• <u>Tidal Schuylkill River Master Plan</u> (2001-2003)

A technical advisory committee, consisting of federal, state and city agencies and recreational user interest groups, among other stakeholders, assisted a watershed planning process for the lower Schuylkill, including the area around Historic Bartram's Garden. This effort was led by the Schuylkill River Development Corporation (SRDC), a private non-profit organization which was awarded a Growing Greener matching grant of \$500,000 from the Pennsylvania Department of

Conservation and Natural Resources (PA DCNR). Statewide, Growing Greener funds are being used for planning, acquisition and development projects that will preserve open space, and promote sound land use planning and natural resource conservation. This particular grant funded a multi-year, community-based planning process focused on the revitalization of the tidal Schuylkill Basin in Philadelphia for the benefit of the city, region and state.

The master plan includes funding and technical support for implementation of the Botanic Trail, strengthens connections among existing Schuylkill River trail segments, considers expansion of recreational uses on the lower Schuylkill, and studies the feasibility of developing a greenway on both banks of the river. It is important to note that the master plan emphasizes trail connections to not only Center City but also to University City, to capture the Drexel, University of Pennsylvania, and University of the Sciences students as well as faculty and staff, many of whom bicycle to and from campus. The trail is seen as a way to support an active lifestyle among this population and encourage the retention of "brain power" in Philadelphia.

East Coast Greenway Master Plan and Needs Assessment (2001)

The purpose of the plan is to monitor the development of the East Coast Greenway (ECG) in Pennsylvania, and to describe and disseminate information about the trail route and where additional support is needed for trail development efforts. The East Coast Greenway is a national trail system that connects major cities along the East Coast from Maine to Florida with a multi-use path. The trail is developing incrementally through local efforts that use pre-existing trail segments or develop new ones. Some 200 miles (8.0 percent) of the total 2,600 miles of trail are designated and in use. Overall, the trail is envisioned as primarily off road; however, in densely developed urban areas such as Philadelphia, the trail is generally on road.

Six sections of the East Coast Greenway (ECG) are under development in Pennsylvania, coordinated through the Clean Air Council and Pennsylvania Committee of the East Coast Greenway. These sections consist of (from north to south): Delaware River Heritage Trail from Trenton, NJ to Torresdale, PA; Kensington & Tacony Trail, from Tacony to Kensington within northeast Philadelphia; Philadelphia City Trail, from Delaware Avenue to Schuylkill River Park; Tidal Schuylkill River Trail/Botanic Trail, from Spring Garden Street to Historic Bartram's Garden; Tinicum-Fort Mifflin Trail, from Bartram's Garden to Tinicum Township, Delaware County; and the Route 291-13 Corridor, from Essington to the Delaware state line. Transportation Enhancements funding has been obtained for constructing 2 portions of the ECG in Delaware County - US Route 13 and Chester City's Rivertown development. Project partners working to implement these trail segments serve on the Pennsylvania Committee in an advisory capacity.

The Master Plan and Needs Assessment recognizes that only a portion of the Tinicum-Fort Mifflin Trail would be incorporated into the ECG. The ECG segment would include the corridor between Historic Bartram's Garden and Fort Mifflin (optimal alignment to be determined); Hog Island Road, potentially including a side path; and the Route 291 side path. The return loop through the John Heinz National Wildlife Refuge and back north into southwest Philadelphia may be identified as an alternate route for the ECG.

 Delaware County Industrial Heritage Parkway: Route 291/13 Beautification and Greenway Plan (March, 2002), Delaware County Planning Department with Menke & Menke and Kise, Straw & Kolodner

The Industrial Heritage Parkway consists of the Route 291 and Route 13 corridors in Delaware County. The 10-mile corridor extends between the Delaware state line and the Philadelphia International Airport, linking the City of Chester, Tinicum and Ridley townships, and Marcus Hook, Eddystone and Trainer boroughs. The focus of the plan is to improve the appearance of this aging industrial corridor, with its diversity of land uses, so that it can successfully attract new high quality development. The feasibility of a multi-use trail along the corridor as part of the East Coast Greenway is discussed as an important component of the plan. Portions of the proposed Tinicum-Fort Mifflin Trail would be incorporated into the East Coast Greenway where it follows the 291 corridor through Tinicum Township and to the Philadelphia International Airport. Several recommendations in the plan affect the Tinicum-Fort Mifflin Trail corridor, including:

- Install directional signage from I-95 at key intersections and routes to municipalities, waterfront, railroad stations, parks and attractions, including Wanamaker Avenue to Governor Printz State Park.
- Use historical and educational images to tell the story of Delaware County's events, activities, people and environmental features, for example, the oil refinery process, the Lazaretto and tidal wetland plants.
- Employ industrial themes on banners to reflect local identity and install as part of a coordinated graphic design program to link each area to the Industrial Heritage Parkway
- Provide clear connections to other trail sections outside the county and corridor as well as to other nearby attractions such as the Heinz environmental center, the Philadelphia International Airport and other destinations.
- Reconstruct the concrete highway median along 291 in Tinicum Township as a landscaped median with trees, grass, and flowers.
- Use the abandoned right-of-way for Powhatan Street east of 420 as an off-road alignment for the East Coast Greenway, and Powhatan Street west of 420, once closed to traffic, as a continuing East Coast Greenway alignment from the abandoned section of Powhatan Street. The alignment would be off road.
- Create on-street trail alignment for East Coast Greenway from Jansen Avenue to Airport Business Center, installing "Share the Road" signs along Route 291, installing East Coast Greenway signs, and negotiating with PennDOT to reduce the speed limit to 25 mph.
- Tinicum Township PennDOT coordinate to incorporate a landscaped gateway in reconstructing Route 291's airport approach.
- Construct new gateways to Tinicum Township similar to existing gateway in center of township.
- Create major gateway entrance for the Industrial Heritage Parkway with thematic banners, industrial sculpture, and landscaping at the Philadelphia/Delaware County line.
- Install "Share the Road" signs along 4th Avenue and 2nd Street in Tinicum
- Restripe Tinicum Island Road to provide 5-foot bike lanes
- Negotiate and purchase abandoned trolley right-of-way under I-95 to connect Tinicum with John Heinz NWR
- Create a pedestrian friendly connection over I-95 to the John Heinz NWR.

The plan also indicates which organizations and agencies will take the lead for each action, how it would be accomplished, and funding sources.

<u>Darby Creek Watershed River Conservation Plan</u> (Draft, April 2002), Darby Creek Valley Association with Cahill Associates and Campbell Thomas & Co

The Darby Creek Valley Association (DCVA) applied to the Pennsylvania Department of Conservation and Natural Resources in 1998 and was awarded a grant to prepare a river conservation plan for the Darby Creek watershed, including Cobbs Creek. DCVA worked with its consultants for two years in developing a draft plan in conjunction with many stakeholders in this highly urbanized, complex watershed that includes 31 municipalities and 4 counties. The river conservation plan inventories significant river resources, identifies potential threats to these resources, and recommends restoration, maintenance or enhancement options in the form of a set of management strategies, all based on a vision of the watershed's future. The draft recommendations take the form of a goal-based action plan. Goals relevant to the Tinicum-Fort Mifflin Trail include increasing open space and recreation and restoring public access to the stream corridor; and identifying and protecting historic, cultural and ecological resources. A "ribbon of green" is the core of a Darby Creek vision, constituting a lineal system of remaining cultural and ecological resources in this heavily impacted watershed.

The river conservation plan noted existing trail systems in the watershed, particularly along the middle reaches of Darby Creek and within John Heinz National Wildlife Refuge, and also mentioned the proposed Tinicum-Fort Mifflin Trail as well as the Route 13/291 beautification and greenway plan. Cobbs Creek Park's current network of paths was also mentioned. The plan recommended that the current fragmented system of paths along some sections of Darby Creek and Cobbs Creek become formalized into a continuous trail system that would connect the communities along the creeks' valleys; however, the plan also noted that many private landowners along Darby Creek would not be willing to grant easements for trail use at this time. The option of locating the trail along scenic back roads is recommended currently, and connections with public transit systems such as the R2 train route and trolley lines (Media, Sharon Hill, Lansdowne) are suggested. Opportunities to develop a trail along the lower portions of Darby Creek include stretches of public parkland and private property where homes are slated for removal because of flooding problems. The plan further recommends linking the Colwyn area with John Heinz National Wildlife Refuge. Opportunities for developing boat access and canoeing along the lower Darby Creek should be pursued as well as the development of a regional pedestrian and bicycling trail system.

 Southeastern PA Bicycle and Pedestrian Mobility Plan, Delaware Valley Regional Planning Commission, 1995; <u>Connecting Philadelphia Parks: A Comprehensive</u> <u>Recreational Trail Plan</u>, Fairmount Park Commission, 1992

Recreational organizations whose memberships enjoy bicycling, hiking and jogging often serve as catalysts for recreational development in communities. In addition, community and regional planners recognize the importance of utilitarian trips by bicycle or on foot. Regional planners recognize that these modes of transportation relieve congestion on city streets and highways, help improve air quality, and benefit the health of those who choose alternative forms of travel.

In 1995 the Delaware Valley Regional Planning Commission (DVRPC) published the Southeastern Pennsylvania Bicycle and Pedestrian Mobility Plan as part of its overall Direction 2020 Plan. The bicycle and pedestrian mobility plan explains in detail the benefits of utilitarian trips by bicycle or on foot. The plan also includes on-street bicycle routes through the Tinicum-Fort Mifflin Trail corridor, and references Philadelphia's Bicycle Network Program (developed by the Philadelphia Streets Department). The DVRPC plan includes an off-road bikeway along the lower Schuylkill River starting north of Market Street, heading south to pass by Fort Mifflin, and

west to Tinicum and the John Heinz National Wildlife Refuge via the Philadelphia International Airport.

Off-street trail recreation has also been addressed by the Fairmount Park Commission in its 1992 publication *Connecting Philadelphia's Parks: A Comprehensive Recreational Trail Plan.* The plan recommends interconnection of individual city parks—Cobbs Creek Parkway, Fairmount Park and Wissahickon Creek, Tacony Park, and Pennypack Park, and Schuylkill River Park—through means of recreational and commuter bicycle routes.

The plan emphasizes the need to develop the strip of land from the Fairmount Water Works to Schuylkill River Park at 26th and Pine as part of the Philadelphia – Valley Forge Schuylkill River Trail system. The plan calls for the development of a 12-foot wide paved trail following the rail line on the east side of the Schuylkill River from Fairmount Water Works to Schuylkill River Park. It also suggests that off-road trails be continued beyond Schuylkill River Park, first to Bartram's Garden and then to the mouth of the Schuylkill at Fort Mifflin. The Fairmount Park Commission recognized changing land uses on the lower Schuylkill, and the potential adaptation of industrial lands to other uses, including recreational trails. Recreational land developed in southwest Philadelphia could include links to the lower portion of Cobbs Creek Parkway and access to the John Heinz National Wildlife Refuge at Tinicum.

Both of these plans address the benefits of having bicycle and pedestrian routes for utilitarian trips and recreational purposes. The DVRPC plan bolsters its argument for these alternate routes by presenting compelling demographics of common bicycle commuters in the Delaware Valley, including incomes, age, sex, number of miles commuting, reasons for bicycle commuting, and links with regional rail transportation and bicycle parking facilities. Reasons for not commuting by bicycle are also listed in order of popularity (According to the mobility plan, the top reason for not commuting by bicycle is that these trips are often perceived as taking too long.).

Both plans relate directly to the Tinicum-Fort Mifflin Trail corridor, as there are potential links with the city's bicycle network, both on- and off-road. The DVRPC plan describes active and inactive rail lines, their potential use as recreational trails and utilitarian trips corridors, and rights-of-way concerns. These rail issues are relevant to the proposed Tinicum-Fort Mifflin Trail, in that much of the 20-mile loop trail would follow along or pass near active or defunct rail lines.

Philadelphia Bicycle Network, Philadelphia Streets Department (ongoing)

Not too long ago, Philadelphia's streets belonged to cars. There was nothing to encourage drivers to accommodate cyclists. And typically, a place to lock a bike was a parking meter or a tree. Since the mid-1990s, these conditions have changed. As of mid-2000, as many as 120 miles of bike lanes had been painted across the city. Signs urging motorists to "share the road" with bicycle traffic are now commonplace. And there are more than 1,000 bike racks in Center City and University City. Moreover, the city has designated more than 80 miles of "bike-friendly" streets, meaning they have wider right lanes for safer cycling.

The city is more than two-thirds of the way to its goal of 300 miles of bike lanes and bike-friendly streets within a decade. It is all part of the Philadelphia Bicycle Network. One of the largest envisioned in the nation for a major city, it is a network of "bike friendly" streets to serve bicyclists as part of a comprehensive program which gives full recognition to the bicycle as a viable mode of transportation. Although Seattle, Washington and Portland, Oregon are years ahead of other big cities in terms of integrating bicycles into their planning, Philadelphia is

among an increasing number of major cities with programs to facilitate cycling as an alternative mode of transportation, aided by \$3.7 million in federal funds.

The Philadelphia Streets Department is designing the bicycle network routes to accommodate commuter and recreational cyclists by creating linkages to major sites related to employment, recreation, culture and tourism, retail, and institutional uses, as well as to provide connections to existing and proposed bicycle routes in the counties bordering Philadelphia. The network will encourage automobile trip reduction by providing planned access to an alternative means of transportation. The goals of the Network Plan are to increase the percentage of trips made by bicycle to 5% of all trips, and to simultaneously reduce by 10% the number of bicyclists killed or injured in traffic accidents.

Philadelphia is committed to the promotion of bicycle use in the city and beyond. Beginning with the establishment of the Mayor's Task Force on Bicycle Safety in 1993, through the annual city employees' Bike-to-Work Day, improvements to the Schuylkill River bike paths, and links to the Valley Forge Bikeway, the city's bike plans were meant to be integrated into a regional approach. The goal is to link the bicycle network to the development of a regional system of multi-use trails, including Montgomery County's 200-mile network of 13 county trails, the Schuylkill River Trail, and the East Coast Greenway. Many proposed alignments for the Tinicum-Fort Mifflin Trail incorporate segments of the Philadelphia Bicycle Network.

<u>Philadelphia Urban Recreation Study</u>, U.S. Department of the Interior-National Park Service, 1977

Although dated, this study contains relevant information applicable to a feasibility analysis of the Tinicum-Fort Mifflin Trail. The study includes historical landmarks and contemporary sites of interest along the lower Schuylkill River. New Sweden at Tinicum, Fort Mifflin, the Philadelphia Naval Base, the Southwest Water Pollution Control Plant, Girard Point and bridge of the same name, wetlands recreated by the Philadelphia Industrial Development Corporation, and Bartram's Garden are some of the sites described. Recreational opportunities in the surrounding neighborhood playgrounds of southwest Philadelphia and Eastwick are described as very limited. The study also addresses site suitability for diverse recreational opportunities and access to the lower Schuylkill River, and describes the need to provide expanded recreational facilities and open space to the residents of southwest Philadelphia.

Analysis of Focus Groups: Promoting River-Based Values and Diverse Community Involvement in Urban River Clean Up and Restoration Efforts, Frederick Schneiders Research, 1997

This study is important in revealing the attitudes and perceptions of Philadelphians towards the Schuylkill River and potential river related recreational opportunities, and could be used to gauge the likely success of public outreach related to the Tinicum-Fort Mifflin Trail.

Focus groups were the tool used to explore the views and values of minorities and "opinion leaders" towards the urban river in their community, and to determine how best to engage a diverse constituency in community-based river restoration and stewardship for the Schuylkill in Philadelphia as well as the South Platte River in Denver. Three groups of residents, one African American and two mixed race, were questioned by a research company regarding their opinions about the environmental condition of the Schuylkill River and their potential use of a recreation trail along the identified 2 ½ -mile stretch of river bordering their neighborhoods. Two additional focus groups, one comprised of African Americans and one of Italian Americans from south and

southwest Philadelphia, were questioned regarding their views specifically on Bartram's Garden.

The study found that, while many residents care about and want to be involved in the restoration and preservation of the Schuylkill River, they feel powerless to effect a change and they often do not have a direct personal connection with the river. Residents said that they would use the urban river for recreation if it were cleaner, safer, had more access points and offered more activities; however, most felt that government and/or local leaders should be responsible for making changes to address these issues. Bike trails in the area are popular attractions, as is river boating; however, minority participants are aware of the socioeconomic division between those who can afford to use the Schuylkill River for boating and those, like themselves, who cannot.

Philadelphia focus group participants had mixed views of Bartram's Garden, considering it beautiful and tranquil, and a good fishing spot, but perceiving the adjacent river as polluted and surrounding areas as crime ridden. Residents living near Bartram's are more likely to use the parkland than residents from other areas of the city. Considering that the Botanic Trail would connect with the Tinicum-Fort Mifflin Trail at Bartram's, this qualitative study provides some important insights as to what kinds of trail related recreation issues most concern or interest area residents.

 <u>Abandoned Railroad Inventory and Policy Plan</u>, Delaware Valley Regional Planning Commission, 1997; <u>Inventory and Re-Use Assessment of Abandoned Rail Lines in</u> <u>Pennsylvania: Final Report</u>, Wilbur Smith Associates, 1994

The Inventory and Re-Use Assessment of Abandoned Rail Lines In Pennsylvania was prepared for the Pennsylvania Department of Environmental Resources (now PA Department of Conservation and Natural Resources) as part of the requirements of the Pennsylvania Rails to Trails Act (Act 188 of 1990). This act established the Pennsylvania Rails to Trails Program, the purpose of which is "to acquire, operate, maintain and develop available railroad right-of-way for public recreational trail use." In order to promote the preservation and protection of abandoned railroad rights-of-way for future use as recreational trails, the Department identified abandoned rail corridors in the state, and their legal status and physical condition, and created a statewide database on existing trails and rail rights-of-way potentially available for trail use.

Philadelphia was identified as having 30.7 miles of inactive rail lines, including one within the Tinicum-Fort Mifflin Trail corridor. The rail line was shown on a statewide map that identified potential rail-trail projects; however, the small scale of this map made it difficult to determine its exact location.

DVRPC's Abandoned Railroad Inventory and Policy Plan of 1997 went further in describing abandoned rail lines specific to Mercer, Burlington, Gloucester and Camden counties in New Jersey, and Chester, Montgomery, Bucks, Delaware and Philadelphia counties in Pennsylvania. Among those abandoned rail rights-of-way in the Philadelphia area, three segments were identified within the trail corridor, and of those three, two were determined to have potential for reuse as trails or trail connectors.

The Pennsylvania Railroad Grays Ferry Avenue and Bridge, Washington Avenue Tracks, was abandoned in 1984. Its 2.2 miles includes the bridge over the Schuylkill, which remains intact and could be utilized as a bicycle/pedestrian route connecting the east and west bank trails of the Schuylkill River. The 60th Street Branch of the Pennsylvania Railroad was built after 1900

and originally ran off the main line at 60th Street in southwest Philadelphia, heading south for 4.4 miles to Fort Mifflin, where it connected with the Chester and Philadelphia Branch. Its 2.3 miles were mostly abandoned as of 1984; however, the DVRPC plan did not propose this rail right-of-way for potential reuse.

The Reading Seashore lines included the Chester & Philadelphia Branch, which ran along Mud Island and used to serve the Baldwin Locomotive Works. The 8-mile segment ran from 0.5 miles north of Fort Mifflin to the north end of Chester. Only a small portion of the entire right-of-way was abandoned in 1984; however, the DVRPC plan noted its potential reuse for a trail. The *Tinicum-Fort Mifflin Trail Development Study* also notes the potential for this rail right-of-way for reuse as a trail; however, much of it is currently active as a freight line hauling fuel oil to the Philadelphia International Airport and to a Sun Oil terminal on the Delaware riverfront. This is not to say, however, that the right-of-way could not include a "rail with trail" or that land use conditions may not lead to abandonment of the rail corridor in the future.

Other Related Plans

The Philadelphia City Planning Commission (PCPC) developed two plans during the mid-1980s that study recreation and business opportunities along the Delaware and Schuylkill rivers. These plans, *Plan for Philadelphia's Waterfronts* and *Philadelphia's Plan for River Recreation*, represent the latest comprehensive recreation information available on the lower Schuylkill River and Tinicum portions of the Delaware River.

Also during this time period, the PCPC revisited the status and future of the Eastwick area's redevelopment in a policy document entitled *Eastwick Urban Renewal Plan Review*. The original intent of the design for the redevelopment of Eastwick, named for an American inventor who once owned the Bartram estate, was to create a self-sufficient community where people could live, work, play, shop, and workshop, and to develop a more suburban character through careful assignment of land uses, minimizing through streets in residential areas, and providing a greenway system. The 1982 document indicated that the park and greenway system envisioned were only partially completed; however, major components of the system were in place by that time, including Eastwick Regional Park, between 77th and 82nd streets, and Buist Avenue and Cobbs Creek; Eastwick Park, at 74th Street and Lindbergh Boulevard; Clearview Park at 77th Street and Buist Avenue; and four smaller neighborhood parks in various parts of Eastwick. Future plans for the area's redevelopment call for a continuous greenway along Cobbs Creek between 75th Street and John Heinz National Wildlife Refuge as well as the expansion of the park system to include large parcels adjacent to Bartram and Island avenues just north of I-95.

The Delaware Estuary--Discover Its Secrets: A Management Plan for the Delaware Estuary (1996), is a comprehensive management plan for the Delaware River and estuary which involved the cooperation of three states—Delaware, Pennsylvania and New Jersey. Plan recommendations seek to protect and enhance water quality in the Delaware River and its tributaries and provide guidelines for sustainable land use that protects natural resources while supporting a viable economic base.

The management plan covers a broad array of topics ranging from pollution studies to recreational uses and opportunities in the estuary, which includes the Tinicum-Fort Mifflin Trail corridor. In regards to recreational use, the plan recommends improving recreational access and activities in the estuary as a way to increase ownership and stewardship among area residents and visitors. The merging of education, riverfront access, and recreational use would

be important factors in increasing public awareness of not only the Schuylkill River, but also the value of greenways and trails such as the Tinicum-Fort Mifflin Trail, and the need to protect these resources.

In more recent years, nine federal agencies have formed the Mid-Atlantic Federal Partners for the Environment (MAPFE). On October 19, 1999 the U.S. Geological Survey, National Park Service, U.S. Fish & Wildlife Service, Bureau of Land Management, Office of Surface Mining (U.S. Department of the Interior), U.S. Environmental Protection Agency (Regions II and III), Forest Service and Natural Resources Conservation Service (U.S. Department of Agriculture), U.S. Army Corps of Engineers, and the National Marine Fisheries Service (Department of Commerce) signed a Memorandum of Understanding (MOU) to collaborate on resolving complex environmental issues in the Mid-Atlantic Region. The National Oceanic and Atmospheric Administration and Federal Aviation Administration have since signed on to the agreement.

The group prioritized a list of common environmental concerns for focus and cooperation, including habitat restoration and remediation for the New York/New Jersey Harbor and Hudson River, restoration of lands and waters affected by past coal mining practices in Pennsylvania, environmental consequences of mountaintop removal mining and valley fills, the need for integrating ecosystem data across spatial and temporal scales in the Delaware River Basin and estuary, and the need for consistency and accuracy in remote sensing information also in the Delaware River Basin and estuary.

The effects of urban sprawl on environmental quality in the Mid-Atlantic Region emerged as the single most pressing problem agreed upon by the group. Uncontrolled growth through development of low-density dwellings and structures on the outskirts of urban and suburban areas can cause changes in land use and landscape characteristics that have significant impacts on environmental quality.

Urban trail projects such as the Tinicum-Fort Mifflin Trail conform to MAPFE's goal to address urban sprawl because they refocus development energy in cities, creating livable, sustainable communities that are less car-dependent. These trail projects include opportunities to re-green industrial and commercial areas, restore damaged ecological systems, enhance air quality, and increase recreational opportunities in cities. Developing the Tinicum-Fort Mifflin Trail as part of a regional trails network is one way to achieve a clean, attractive urban environment with recreational amenities that can help draw people back to the cities to live and work. The trail is part of a larger redevelopment strategy for the lower Schuylkill and Delaware rivers that can help create healthy and vibrant neighborhoods. The strategy includes promotion of brownfields re-development, and re-greening of the area, which encourages land recycling while reducing development pressures. Air and water quality are improved by reducing the amount of vehiclemiles traveled and the amount of new land paved over by greenfield development.

The Proposed Tinicum-Fort Mifflin Trail: Project Background

The 1995 Management Action Plan for the Schuylkill River Heritage Corridor, developed cooperatively by the Schuylkill River Greenway Association and a five-county advisory committee, called for the conservation of important natural, cultural and historic resources that make the corridor an important asset for economic vitality at the state, regional, county and local levels. The plan also envisioned the Schuylkill River Trail as an important component of a riverbank greenway system extending some 140 miles from Schuylkill County down to Fort

Mifflin and the mouth of the Schuylkill River in Philadelphia. Portions of the Schuylkill River Trail in Philadelphia, including the Philadelphia-to-Valley Forge Bikeway and the Botanic Trail, are complete or under construction. These segments take the Schuylkill River Trail as far south as Bartram's Garden, a couple of miles north of Fort Mifflin.

In 1997, a project team consisting of consultants and representatives from Bartram's Garden, Fort Mifflin, and the National Park Service's Rivers, Trails and Conservation Assistance Program (NPS RTCA) was formed to study the feasibility of extending the Schuylkill River Trail further south to Fort Mifflin and the confluence with the Delaware River. The trail would effectively move trail users from the terminus of the Botanic Trail, a segment of the Schuylkill River Trail, further south along the Schuylkill to Fort Mifflin, Essington and Lester, with a loop around the Philadelphia International Airport that connects to the John Heinz National Wildlife Refuge at Tinicum. With an additional extension to the Cobbs Creek Trail and Parkway, the proposed Tinicum-Fort Mifflin Trail would become an integral part of a regional network of trails for recreation and utilitarian trips. The trail would be an extension of Schuvlkill River Trail along a revitalized lower Schuylkill, and would allow greater access to relatively isolated historic and cultural sites such as the Woodlands, Fort Mifflin, Bartram's Garden, Blue Bell Inn, and the Mortenson homesteads. The proposed Tinicum-Fort Mifflin Trail was meant to be incorporated into a larger regional trails network that would include the East Coast Greenway, a trail that connects major metropolitan areas from Maine to Florida; the Schuylkill River Trail (as part of the Tidal Schuylkill River Master Plan) and the Chester Creek Trail further south and west in Delaware and Chester counties.

During 1998 and 1999, the project team concentrated on defining the geographic extent of the trail corridor, developing the guiding vision and concept for the trail, identifying and contacting key stakeholders—including potential trail users and landowners—to develop awareness of and build support for the trail, inventorying corridor resources, and assembling the funding package to support the trail development study.

During 1998, the project team developed an extensive mailing database, and conducted over 80 interviews which helped assess existing information and plans for the lower Schuylkill, potential recreation opportunities and issues, additional contacts, and levels of support for the trail concept. Highlights included organization of GIS mapping and database of trail resources, and a "case statement" brochure outlining the trail concept to develop awareness of the project. The brochure has been distributed to federal and local government agencies whose jurisdiction includes the trail corridor, to major corporate landowners within the corridor, and to the general public.

During 1999, the project team worked with the East Coast Greenway Alliance (ECGA) to include consideration of the proposed Tinicum-Fort Mifflin Trail as part of the primary route for the East Coast Greenway (ECG), designated a National Millenium Trail. The project team contributed information for the ECG State of the Trail report and helped organize and facilitate the "East Coast Greenway in Pennsylvania" conference with national ECGA members. Other related efforts included:

- assisting Delaware County Planning Commission in developing the TEA-21 application for enhancements to the Route 291 corridor in Delaware County, including a bikeway segment of the ECG that would link with the Tinicum-Fort Mifflin Trail; and
- a public involvement program--one-page newsletter for fax and internet distribution; web
 page for the trail project, using the pre-existing RTCA program site; and participating in a
 series of summer bike tours to draw public attention to the future trail corridor.

In November of 1999 Fort Mifflin on the Delaware, Inc. received the final match to the \$15,000 grant for a trail development study, awarded by the Pennsylvania Heritage Parks Program in 1998. The Schuylkill River Greenway Association administers and distributes the state Heritage Parks funding for the Schuylkill River Heritage Corridor. The required total \$5,000 match combines \$1,000 from the Conservation Fund, \$1,000 from United Parcel Service, and \$3,000 from the Delaware Valley Bicycle Coalition (now the Bicycle Coalition of Greater Philadelphia). The grant allowed Fort Mifflin and its partners to further the objectives of the Schuylkill Heritage Corridor Management Action Plan and regional trail planning efforts by taking the Tinicum-Fort Mifflin Trail to the next stage of planning. In the spring of 2000, the contract for the trail development study was awarded to Campbell Thomas & Company, a Philadelphia based planning and architecture firm. Finally, the trail planning effort could get under way in May of 2000. The trail development study closely examines the opportunities and constraints to conserve and link river resources by means of a trail/greenway through parts of Philadelphia and Delaware counties and compares the feasibility of potential alternative alignments.

See the Planning Process section for a description of the public participation and trail corridor inventory and analysis methodology associated with this trail development study.